ADVANCES IN
POLYMER
TECHNOLOGY

JOURNAL OF
The Polymer Processing Institute

The Polymer Processing Institute (PPI) is an independent research corporation headquartered at NJ Institute of Technology with strong links to the Institute of Polymer Technology and materials engineering of Loughborough University (UK). Its mission is to assist industry by advancing knowledge in the field of Polymer Technology and related areas through sponsored research, development, and education, and to disseminate information via all appropriate mechanisms for technology transfer.

Contents of Volume 21

Number 1, Spring 2002

Editor's Note 1
Marino Xanthos and Theodore Davidson

FEATURES

Hybrids of Poly(ethylene oxide-*b*-amide-6) and ZrO_2 Sol–gel: Preparation, Characterization, and Application in Processes of Membranes Separation 2
Rita Aparecida Zoppi and Claudia Garcia Azevedo Soares

Investigation of the Gelatinization and Extrusion Processes of Corn Starch 17
Roberta C. R. Souza and Cristina T. Andrade

Hydroxy-Terminated Polybutadiene Toughened Epoxy Resin: Chemical Modification, Microstructure, and Impact Strength 25
Vera L. Pereira Soares, Valeria D. Ramos, George W. M. Rangel, and Regina Sandra V. Nascimento

Synthesis of Poly(O-Anisidine) Coatings on Low Carbon Steel by Electrochemical Polymerization of O-Anisidine 33
M. G. Wankhede, P. M. Koinkar, M. A. More, P. P. Patil, and S. A. Gangal

Towards a Better Understanding of the Cathodic Disbondment Performance of Polyethylene Coatings on Steel 44
D. Roy, G. P. Simon, M. Forsyth, and J. Mardel

Synthesis and Characterization of Optically Active and Functional Terpolymer of Citronellol, Styrene, and Methyl Methacrylate: A Kinetic Study 59
Prachi Pandey and A. K. Srivastava

Tin Soaps in Emulsion PVC Heat Stabilization 65
Esen Arkiş and Devrim Balköse

DEPARTMENTS

News from the Polymer Processing Institute 74

Number 2, Summer 2002

SPECIAL TECHNOLOGY INSIGHT

Machine Invention, Innovation, and Elementary Steps 87
Zehev Tadmor

FEATURES

Estimation of Elongational Viscosity of Polymers from Entrance Loss Data Using Individual Parameter Optimization 98
Mahesh Gupta

Free Radical Copolymerization of Styrene with Vinyl Acetate Using *p*-Acetylbenzylidene Triphenylarsonium Ylide as an Initiator 108
Neeta Daniel and A. K. Srivastava

Preparation and Characterization of SiO_2-Functionalized Phenolic Resin Hybrid Materials 116
G. Hernández-Padrón, R. M. Lima, R. Nava, M. V. García-Garduño, and V. M. Castaño

Polyester of Dimethyl 7-(*N*-pyrrolidinyl)-2,7-cycloheptadiene-1,2-dicarboxylate and its Lithium Triflate Complex 125
Özen Kavuklu, Ali Güner, and Nazan Tunoğlu

γ-Radiation–Induced Emulsion Graft Copolymerization of MMA onto Jute Fiber 132
F. Khan, S. R. Ahmad, and E. Kronfli

DEPARTMENTS

News from the Polymer Processing Institute 141

Number 3, Fall 2002

FEATURES

Rubber Toughening of Glass Fiber Reinforced Nylon-6,6 with Functionalized Block Copolymer SEBS-g-MA 153
George P. Karayannidis, Demetris N. Bikiaris, George Z. Papageorgiou, and Vassilios Bakirtzis

Modification of Polypropylene by Melt Vibration Blending with Ultra High Molecular Weight Polyethylene 164
Kejian Wang, Chixing Zhou, Hongbin Zhang, and Delu Zhao

Simulation of Injection-Compression Molding Process, Part 3: Effect of Process Conditions on Part Birefringence 177
Shia-Chung Chen, Yung-Cheng Chen, Hsin-Shu Peng, and Lei-Ti Huang

Experimental Investigation of Polymer Pellets Melting Mechanisms in Corotating Twin-Screw Extrusion 188
Linjie Zhu and Xiaozheng Geng

Studies on Morphology and Mechanical Properties of EPDM-g-VOS/LLDPE Blends for Engineering Applications 201
M. Suresh Chandra Kumar and M. Alagar

Simplified Model of Stress-Induced Crystallization Kinetics of Polymers 214
Jianxin Guo and Kwabena A. Narh

DEPARTMENTS

News from the Polymer Processing Institute 223

Number 4, Winter 2002

FEATURES

Comparison of Volatiie Emissions and Structural Changes of Melt Reprocessed Polypropylene Resins 235
Q. Xiang, M. Xanthos, S. H. Patel, and S. Mitra

Effect of Screw Element Type in Degradation of Polypropylene upon Multiple Extrusions 243
Sebastião V. Canevarolo and Ana Clélia Babetto

Poly(ethylene terephthalate) Recycling and Recovery of Pure Terephthalic Acid by Alkaline Hydrolysis 250
G. P. Karayannidis, A. P. Chatziavgoustis, and D. S. Achilias

Restabilization of Recycled, $CaCO_3$-Filled Polypropylene: Assessment of Reprocessing Induced Modifications and Processing Stabilizer Effectiveness 260
C. J. Tsenoglou, C. N. Kartalis, C. D. Papaspyrides, and R. Pfaendner

Surface Analysis of Coating Based on Novel Water-Diluted Fluorinated Polymer/Silica Hybrids 268
Zhigang Yu, Zhaobin Zhang, Qiaolong Yuan, and Shengkang Ying

An Attempt at Engineering the Bulk Properties of Blends of a Bitumen with Polymers 275
Allan H. Fawcett, Tony McNally, and Gerry McNally

Plastic Energy Dissipation During Compressive Deformation of Individual Polymer Pellets and Polymer Particulate Assemblies 287
Costas G. Gogos and Bainian Qian

REVIEWS

Carbon Black Filled Conducting Polymers and Polymer Blends 299
Jan-Chan Huang

DEPARTMENTS

News from the Polymer Processing Institute 314

Indexes to Volume 21 326